

CLAIMS

1. A compound of Formula I



Formula 1

wherein:

R₁, R₂ and R₄ are independently selected from the group H, C₁-C₈ alkyl, phenyl, substituted phenyl, benzyl, substituted benzyl, heteroaryl, substituted heteroaryl, hetroarylmethylene, and substituted hetroarylmethylene;

R₃ is H, C₁-C₈ alkyl, heteroalkyl, cycloalkyl, aryl, heteroaryl;

with the proviso that the compound is not:

1-(4-methoxyphenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone (**6**);

1-(4-chlorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone (**7**);

1-(4-fluorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone (**11**);

1-phenyl-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone (**12**);

2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]-1-phenylethanone (**21**);

1-(4-methoxyphenyl)-2-[[5-(4-methoxyphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone (**27**); or

1-(4-methoxyphenyl)-2-[[4-(4-methylphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone (**39**).

2. A compound of Claim 1 selected from the group:

a) 1-(1,1'-biphenyl-4-yl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;

b) N-(2-nitro-4-[[4-(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]acetyl]phenyl)acetamide;

- c) N-(4-{2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]acetyl}phenyl)acetamide;
- d) 1-(2,4-dichlorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- 5 e) 1-(2,3-dihydro-1,4-benzodioxin-6-yl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- f) 6-[[4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]acetyl}-1,3-benzoxazol-2(3H)-one;
- g) 1-(4-methoxyphenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 10 h) 1-(4-fluorophenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- i) 1-(2,4-dichlorophenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 15 j) 1-(3,4-dihydroxyphenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- k) 1-(2,4-dichlorophenyl)-2-[[5-(4-methoxyphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- l) 1-(4-methoxyphenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 20 m) 1-(4-chlorophenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- n) 1-(4-fluorophenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 25 o) 1-(2,4-dichlorophenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- p) 1-(2,3-dihydro-1,4-benzodioxin-6-yl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- q) 1-(2,4-dichlorophenyl)-2-[[4-(4-methylphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 30 r) 2-[[4-(4-chlorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]-1-(4-methoxyphenyl)ethanone;

- s) 2-{{[4-(4-chlorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}-1-(2,4-dichlorophenyl)ethanone;
- t) 2-{{[4-(2-fluorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}-1-(4-methoxyphenyl)ethanone;
- 5 u) 1-(2,4-dichlorophenyl)-2-{{[4-(2-fluorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- v) 1-(4-methoxyphenyl)-2-{{[4-(4-methoxyphenyl)-5-thien-3-yl-4H-1,2,4-triazol-3-yl]thio}ethanone; and
- 10 w) 1-(4-fluorophenyl)-2-{{[4-(4-methoxyphenyl)-5-thien-3-yl-4H-1,2,4-triazol-3-yl]thio}ethanone.

3. The method of treating parasitism by insects or helminths comprising administering to a mammal in need of such treatment a therapeutically effective amount of a
15 compound of Formula I or a pharmaceutically acceptable salt thereof.

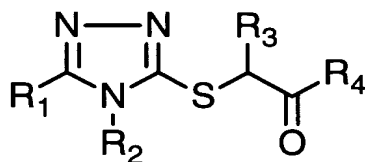
4. The method of Claim 3 wherein the compound is:

- a) 1-(4-methoxyphenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- 20 b) 1-(4-chlorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- c) 1-(1,1'-biphenyl-4-yl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- d) N-(2-nitro-4-{{[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]acetyl}phenyl)acetamide;
- 25 e) N-(4-{2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]acetyl}phenyl)acetamide;
- f) 1-(4-fluorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- 30 g) 1-phenyl-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- h) 1-(2,4-dichlorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;

- i) 1-(2,3-dihydro-1,4-benzodioxin-6-yl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- j) 6-[[[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]acetyl]-1,3-benzoxazol-2(3H)-one;
- 5 k) 1-(4-methoxyphenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- l) 1-(4-fluorophenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 10 m) 2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]-1-phenylethanone;
- n) 1-(2,4-dichlorophenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- o) 1-(3,4-dihydroxyphenyl)-2-[[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 15 p) 1-(4-methoxyphenyl)-2-[[5-(4-methoxyphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- q) 1-(2,4-dichlorophenyl)-2-[[5-(4-methoxyphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- r) 1-(4-methoxyphenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 20 s) 1-(4-chlorophenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- t) 1-(4-fluorophenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 25 u) 1-(2,4-dichlorophenyl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- v) 1-(2,3-dihydro-1,4-benzodioxin-6-yl)-2-[[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- w) 1-(4-methoxyphenyl)-2-[[4-(4-methylphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;
- 30 x) 1-(2,4-dichlorophenyl)-2-[[4-(4-methylphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]ethanone;

- y) 2-{{4-(4-chlorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl}thio}-1-(4-methoxyphenyl)ethanone;
- z) 2-{{4-(4-chlorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl}thio}-1-(2,4-dichlorophenyl)ethanone;
- 5 aa) 2-{{4-(2-fluorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl}thio}-1-(4-methoxyphenyl)ethanone;
- bb) 1-(2,4-dichlorophenyl)-2-{{4-(2-fluorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl}thio}ethanone;
- cc) 1-(4-methoxyphenyl)-2-{{4-(4-methoxyphenyl)-5-thien-3-yl-4H-1,2,4-
10 triazol-3-yl}thio}ethanone; and
- dd) 1-(4-fluorophenyl)-2-{{4-(4-methoxyphenyl)-5-thien-3-yl-4H-1,2,4-triazol-3-yl}thio}ethanone.

5. A composition containing a compound of Formula I



Formula 1

wherein:

R₁, R₂ and R₄ are independently selected from the group H, C₁-C₈ alkyl, phenyl, substituted phenyl, benzyl, substituted benzyl, heteroaryl, substituted heteroaryl, hetroarylmethylene, and substituted hetroarylmethylene;

20 R₃ is H, C₁-C₈ alkyl, heteroalkyl, cycloalkyl, aryl, heteroaryl.

6. A composition of Claim 5 wherein the compound is:

- a) 1-(4-methoxyphenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- 25 b) 1-(4-chlorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- c) 1-(1,1'-biphenyl-4-yl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;

- d) N-(2-nitro-4-[[4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]acetyl}phenyl)acetamide;
- e) N-(4-{2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]acetyl}phenyl)acetamide;
- 5 f) 1-(4-fluorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- g) 1-phenyl-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- h) 1-(2,4-dichlorophenyl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- 10 i) 1-(2,3-dihydro-1,4-benzodioxin-6-yl)-2-[(4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl)thio]ethanone;
- j) 6-[[4-phenyl-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio]acetyl}-1,3-benzoxazol-2(3H)-one;
- 15 k) 1-(4-methoxyphenyl)-2-{[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- l) 1-(4-fluorophenyl)-2-{[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- m) 2-{[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio}-1-phenylethanone;
- 20 n) 1-(2,4-dichlorophenyl)-2-{[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- o) 1-(3,4-dihydroxyphenyl)-2-{[5-(4-methylphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- 25 p) 1-(4-methoxyphenyl)-2-{[5-(4-methoxyphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- q) 1-(2,4-dichlorophenyl)-2-{[5-(4-methoxyphenyl)-4-phenyl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- r) 1-(4-methoxyphenyl)-2-{[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- 30 s) 1-(4-chlorophenyl)-2-{[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;

- t) 1-(4-fluorophenyl)-2-{{[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- u) 1-(2,4-dichlorophenyl)-2-{{[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- 5 v) 1-(2,3-dihydro-1,4-benzodioxin-6-yl)-2-{{[4-(4-methoxyphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- w) 1-(4-methoxyphenyl)-2-{{[4-(4-methylphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- x) 1-(2,4-dichlorophenyl)-2-{{[4-(4-methylphenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- 10 y) 2-{{[4-(4-chlorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}-1-(4-methoxyphenyl)ethanone;
- z) 2-{{[4-(4-chlorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}-1-(2,4-dichlorophenyl)ethanone;
- 15 aa) 2-{{[4-(2-fluorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}-1-(4-methoxyphenyl)ethanone;
- bb) 1-(2,4-dichlorophenyl)-2-{{[4-(2-fluorophenyl)-5-pyridin-4-yl-4H-1,2,4-triazol-3-yl]thio}ethanone;
- cc) 1-(4-methoxyphenyl)-2-{{[4-(4-methoxyphenyl)-5-thien-3-yl-4H-1,2,4-triazol-3-yl]thio}ethanone; and
- 20 dd) 1-(4-fluorophenyl)-2-{{[4-(4-methoxyphenyl)-5-thien-3-yl-4H-1,2,4-triazol-3-yl]thio}ethanone.